

**Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, DC 20554**

In the Matter of	)	
	)	
Request of National Railroad Passenger	)	ET Docket No. 16-415
Corporation d/b/a Amtrak Request for	)	
Waiver of Rule Sections 15.407(a)(1)(iii) and	)	
15.407(a)(3)	)	

**COMMENTS OF WI-FI ALIANCE**

Wi-Fi Alliance®<sup>1/</sup> submits these comments in response to the request by the National Railroad Passenger Corporation d/b/a Amtrak (“Amtrak”) for a waiver of certain Part 15 rules that would permit it to operate higher-powered stations in the 5 GHz band used for, among other applications, Wi-Fi.<sup>2/</sup> Wi-Fi Alliance applauds Amtrak for recognizing Wi-Fi as a key component of service to its customers. However, Amtrak should demonstrate that the benefit its customers will receive will not impose a cost on other users of the 5 GHz band. Wi-Fi Alliance therefore requests that the Commission require Amtrak to provide further evidence of compatibility with other 5GHz operations before the Commission grants the requested waiver.

**I. INTRODUCTION**

Wi-Fi Alliance is a global, non-profit industry association of over 700 leading companies from dozens of countries devoted to connecting everyone and everything everywhere. With

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<sup>1/</sup> Wi-Fi®, the Wi-Fi logo, the Wi-Fi CERTIFIED logo, Wi-Fi Protected Access® (WPA), WiGig®, the Wi-Fi ZONE logo, the Wi-Fi Protected Setup logo, Wi-Fi Direct®, Wi-Fi Alliance®, WMM®, and Miracast® are registered trademarks of Wi-Fi Alliance. Wi-Fi CERTIFIED™, Wi-Fi Protected Setup™, Wi-Fi Multimedia™, WPA2™, Wi-Fi CERTIFIED Passpoint™, Passpoint™, Wi-Fi CERTIFIED Miracast™, Wi-Fi ZONE™, WiGig CERTIFIED™, Wi-Fi Aware™, Wi-Fi HaLow™, the Wi-Fi Alliance logo and the WiGig CERTIFIED logo are trademarks of Wi-Fi Alliance.

<sup>2/</sup> Request for Waiver of Amtrak, ET Docket No. 16-415 (Dec. 13, 2016) at 1 (“*Amtrak Waiver Request*”). While Amtrak requested a waiver of 47 CFR § 15.407(a)(1)(iii), it appears from the description of its request that it actually seeks a waiver of 15.407(a)(1)(iv).

technology development, market building, and regulatory programs, Wi-Fi Alliance has enabled widespread adoption of Wi-Fi® worldwide, certifying thousands of Wi-Fi products each year. The mission of Wi-Fi Alliance is to provide a highly effective collaboration forum for Wi-Fi matters, grow the Wi-Fi industry, lead industry growth with new technology specifications and programs, support industry-agreed standards, and deliver greater product connectivity through interoperability, testing, and certification. Wi-Fi Alliance has participated in the Commission's important efforts to expand the spectrum resources available for unlicensed operations, including opening up portions of the 5 GHz band for unlicensed devices.<sup>3/</sup>

The *Amtrak Waiver Request* proposes a trackside network (“TSN”) of fixed base stations installed along its Northeast Corridor line (“NEC”) which would utilize the U-NII-1 and U-NII-3 bands to provide Internet access to its trains as they move. Amtrak seeks to operate that system using power limits applicable to fixed point-to-point stations despite the system having components – the trains – which are mobile.<sup>4/</sup> According to Amtrak, because the limited nature of its proposed system (it would be installed only along the NEC track and the stations which serve it), it is effectively a point-to-point system rather than a true mobile system.<sup>5/</sup> Amtrak argues that the waiver is necessary because the available 80 megahertz channel in the U-NII-3 band is insufficient for its current and projected future uses and because the existing rules governing mobile operations in the U-NII-1 band would impose costly and burdensome

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<sup>3/</sup> See *Revision of Part 15 of the Commission's Rules to Permit Unlicensed National Information Infrastructure (U-NII) Devices in the 5 GHz Band*, First Report and Order, 29 FCC Rcd. 4127 (2014) (“U-NII R&O”); *Revision of Part 15 of the Commission's Rules to Permit Unlicensed National Information Infrastructure (U-NII) Devices in the 5 GHz Band*, Notice of Proposed Rulemaking, 28 FCC Rcd. 1769 (2013).

<sup>4/</sup> *Id.* at 9.

<sup>5/</sup> *Id.*

limitations by requiring the installation of many more base stations to compensate for the lower power levels required of mobile systems in this band.<sup>6/</sup>

The need for, and use of, unlicensed spectrum is well established.<sup>7/</sup> Amtrak's proposal underscores the centrality of Wi-Fi and unlicensed spectrum in today's wireless ecosystem. That is why the Commission must be certain that other users of unlicensed spectrum will not be negatively affected by waiver of the rules for the benefit of Amtrak's customers.

## II. DISCUSSION

Part 15 of the Commission's rules provides that users are required to accept interference caused by other Part 15 devices.<sup>8/</sup> However, the premise of that expectation is anchored in all users operating with the same technical parameters. Once the Commission permits a class of Part 15 users to operate with, for example, higher powered facilities, that delicate balance may be disturbed. Any waiver of the Part 15 rules must therefore demonstrate that devices operating under the waiver will cause no more interference than devices compliant with the rules.

The *Amtrak Waiver Request* contains a brief examination of the potential interference to satellite operations caused by its proposed system, but it does not meaningfully consider potential interference to U-NII devices.<sup>9/</sup> Instead, Amtrak asserts that its proposed system will cause only *de minimis* interference because of the use of directional antennas with a narrow beamwidth.<sup>10/</sup> It points to the limited activity in any given location, since the TSN will only be

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<sup>6/</sup> *Id.* at 12-14.

<sup>7/</sup> See, e.g., *U-NII R&O* at ¶¶ 15-24; and *In the Matter of Use of Spectrum Bands Above 24 GHz for Mobile Radio Services*, Report and Order and Further Notice of Proposed Rulemaking, GN Docket No. 14-177 at ¶¶ 125-131 (rel. Jul. 14, 2016).

<sup>8/</sup> 47 C.F.R. § 15.5.

<sup>9/</sup> *Amtrak Waiver Request* at 14-16.

<sup>10/</sup> *Id.* at 15.

transmitting (whether from a train or base station) when a train is nearby.<sup>11/</sup> But even this theoretical assessment does not tell the full story. Amtrak acknowledges that some stations located downtown in the cities served by the NEC may be active for “several minutes” at a time.<sup>12/</sup> Given the number of trains Amtrak operates along the NEC, “several minutes” per train could add up to substantial portions of the day in many locations.

Even if Amtrak’s claims were sound, mere assertions of lack of interference are not sufficient. Amtrak must conduct testing of interference potential, perhaps using the “proof-of-concept” TSN Amtrak has already constructed in Delaware,<sup>13/</sup> and provide that data to the Commission and to the public to ensure that existing operations are protected. These field tests should include coexistence measurements of existing Wi-Fi systems placed at distances representative of the “worst case scenario” in which train tracks pass very close to residential and commercial structures. The tests would also be an opportunity to evaluate Amtrak’s claim that the as-proposed TSN would produce less interference than a system which would comply with the rules.<sup>14/</sup>

Wi-Fi Alliance further urges Amtrak to commit to building any U-NII band system using only Wi-Fi Certified equipment in order to ensure compatibility with other Wi-Fi devices.

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<sup>11/</sup> Amtrak stated that that most links will only be active for around 20 seconds at a time. *Id.*

<sup>12/</sup> *Id.*

<sup>13/</sup> *Id.* at 5.

<sup>14/</sup> *Id.* at 16.

### III. CONCLUSION

As Amtrak noted in its waiver request, the NEC serves some of the most densely populated areas in the United States, running between Washington, DC and Boston, MA.<sup>15/</sup> Like any densely populated area, Amtrak's rail corridor already features intense use of unlicensed spectrum for Wi-Fi systems. The Commission must ensure that the nearby homes and office buildings which rely heavily on Wi-Fi networks are not negatively affected by Amtrak's proposal. Wi-Fi Alliance therefore urges the Commission to require that Amtrak demonstrate that the utility of existing and future U-NII devices will not be compromised by Amtrak's proposed system.

Respectfully submitted,



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<sup>15/</sup> *Id.* at 2.